

inferior tibiofibular articulation. The outer edge of the superior articular surface of the astragalus becomes uppermost and is drawn backward. In a Dupuytren fracture we have the lesion already described plus a tearing of the inferior tibiofibular ligaments or a vertical fracture in the tibia just mesial to the tibiofibular articulation. The outer and upper wedge of the rotated astragalus then becomes the apex of the wedge which increases the separation of the tibia and fibula. This separation also occurs in oblique upward and outward fractures of the fibula from just below the inferior tibiofibular articulation. Rouland believes these fracture-dislocations are some of the most serious injuries of the lower limbs, since the abduction, eversion and flattening of the foot increase with time. Osteo-arthritis changes soon take place in the ankle and metatarsal joints and later the knee and hip may become affected. In all roentgen-ray examinations, and these are essential, the ankle should be examined in both the anterior posterior and the lateral position. The complete reduction is difficult and only by operation can the fragments be brought into perfect apposition. There are different views as to the necessity of getting perfect apposition. When treated conservatively an anesthetic should be given in order to properly reduce the fracture. In some cases division of the tendo Achillis is warranted. Reduction should not be attempted after swelling has appeared until it subsides. It is easier to maintain a good position with a plaster splint than by any other means. Roentgen-ray examination should be repeated. After three weeks massage and passive movements begin. No weight-bearing is allowed for eight weeks and the inner border of the boot is built up when this begins. When the above method fails to get a good reduction operation can be done within one week of the accident. The fibular fracture is wired or plated. The tibiofibular separation is corrected with a long screw. In many cases this is all that is required. The long screw has been retained by many for years. Correction of the deformity and restoration of function in late cases is difficult. The tendo Achillis must frequently be divided at operation, and this is best done by dividing the two lateral halves at two levels. The tibia is divided three-fourths of an inch above the level of the tip of the malleolus and the deformity slightly overcorrected. The after-treatment is similar to that given under conservative treatment.

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## PEDIATRICS

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UNDER THE CHARGE OF

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**Immunization against Diphtheria in a Large Child-caring Institution.—** BLUM (*Am. Jour. Dis. Children*, July, 1920) made Schick tests in 1076 children in an institution during a period of five years. He found that a negative Schick test is evidence of the presence of sufficient antitoxin in the tissues to protect the individual against diphtheria infection. The

moderate or slightly positive test denotes an insufficient amount of antitoxin in the tissues to protect the individual. The tests called very faintly positive show possibly sufficient antitoxin to protect, but it is possible to transfer virulent organisms to these individuals, which may not only cause them to become carriers, but may cause them to suffer from a superficial infection without any constitutional toxemia. Tests made on 72 families showed that the younger members of the same family usually gave corresponding reactions to the Schick test. When variations did occur the younger members gave usually the positive and the older the negative reactions. Infants under six months of age because of the transmitted immunity from the mother were exceptions to the rule. Change in the Schick reaction from negative to positive during the first three years of life, due to the loss of inherited immunity, were found to be sufficiently numerous to justify retesting during this period, at intervals of a few months. The full duration of the active immunity conferred on individuals susceptible to diphtheria by the injection of toxin-antitoxin is not yet ascertained. In one series the immunity persisted in 100 per cent. of the cases of a group of 50 children for at least twenty-two months. Once acquired, immunity may last for four and a half years. The institution in which this study was conducted has been kept free from diphtheria for a period of five years.

**A Study of the Malnutrition of School Children.**—BROWN (*Jour. Am. Med. Assn.*, July 3, 1920) made a study of the children of a school in which 41 per cent. of the pupils were at least 10 per cent. under weight. She found that the two factors chiefly responsible for the beneficial results were the work of the school nurse in securing home coöperation and the selection of food with reference to supplying the dietary deficiencies of the home. One of the most interesting observations was that these children readily stowed away from 1000 to 1800 calories in addition to their customary three meals. The mothers reported that they ate more at home as well. This indicates that the amount of food needed by growing children has been underestimated. No correlation was found between the rate of growth of these children and any social conditions. The time of the observation was too short to show the favorable results of the other elements of the health service. If a few weeks longer had elapsed it is probable that a favorable result would have been shown by the correction of dental defects and the removal of diseased tonsils and adenoids. Two facts stood out. These children in spite of adverse conditions and handicaps were so badly in need of food that they made a gain of 278 per cent., or 302 per cent. gain over a control group. Nine and half months of intensive health service brought this school from the lowest rank in the city to third place.

**Precipitins for Egg Albumen in Stools.**—GRULEE (*Am. Jour. Dis. Children*, July, 1920) studied the stools of three groups of cases to ascertain the digestion of egg albumen. In the first group 103 stools from 24 cases were examined, with three positive reactions. These were all from children of two years or over. Two of the positive reactions occurred in a case of idiocy. This child took large quantities of egg in the diet while the other children in this series were only given

egg in ice-cream or puddings once or twice a week. The other positive reaction occurred in the stool of a case within forty-eight hours after taking the diet. In seventeen other stools from the same case no positive reaction occurred. In the second group a teaspoonful of egg albumen was given each day to a control case through a gastrostomy wound, to a case of intestinal infantilism and to a case of general eczema. In seventeen stools from these cases only one showed a doubtful reaction. The third group of 33 cases of infants of two years or under, furnished 221 stools. In only two of these cases was the age over one year. Many were newborn infants who had received albumen water of a strength of 10 c.c. of egg albumen to 500 c.c. of water. Five stools gave positive reactions. One of these occurred in a newborn infant. In the other three children there was no albumen in the diet. From this observation it is seen that egg albumen is nearly always completely broken down by the digestive processes of infants and children.

**The Effect of Splenectomy upon Growth in the Young.**—HENN (*Am. Jour. Physiol.*, July, 1920) says in this work that the results of observations on rats and rabbits are sufficient to permit of conclusions as to the effect of splenectomy upon growth. He felt that he was not justified in drawing conclusions upon the results of his two series of experiments on kittens, although their weight curves were similar to those of rats and rabbits. In dogs there were early influences of temper and gastro-intestinal disturbances that presented a factor that was not ruled out in other animals. The resistance of blood corpuscles to hypotonic sodium chloride solutions was found to be true in animals operated upon while young as well as in others operated when older. This suggests that the spleen may have the function of preparing the blood for destruction. The quickened coagulation of the blood from splenectomized dogs may be a protective means against the loss by hemorrhage during the time of the anemia. The results suggest that the earlier that an animal is splenectomized the more rapid is the time of coagulation. It may be due to the general leukocytosis or to an increased amount of fibrinogen, which may account for the large amount of fibrin secured when the blood from splenectomized animals is defibrinated. This increase of fibrinogen may be due to a greater production by the liver in the absence of the spleen. No difference was noted in activity or temperament in rat, rabbit or dogs, but a slight difference was seen in kittens. This may be due to some individual variation rather than to any effect following removal of the spleen. In rabbits it was clear that the females were not rendered sterile. In rats neither sex was sterilized. Histological examinations suggested that the spleen was somehow connected with the blood. The presence of large hemolymph glands, especially in the mesentery, suggested that if this was a compensatory hyperplasia following splenectomy it is important that such a function should be produced in the portal circulation. The bone-marrow changes were striking. The bone-marrow through the different types of cells present indicated that there was a process of erythropoiesis and leukogenesis taking place while an increase of Kupffer cells and endothelial cells of lymph glands indicated a process of blood-destruction.

**The Treatment of Indigestion in Children**—MORSE (*Jour. Am. Med. Assn.*, July 10, 1920) says that there is no place for the so-called digestants in the treatment of chronic indigestion in children. There is probably never an insufficiency of hydrochloric acid or pepsin, and as pancreatin is destroyed in the stomach it can be of no use. The main essentials of treatment consist primarily in regulation of the diet to fit the digestive capacity of the individual child. Examination of the stools is of importance in controlling this factor. In the cases in which there is marked clinical evidence of fermentation, bacteria undoubtedly play an important role. In cases in which the evidence of fermentation is less they may also be an important cause of trouble. It is of the greatest importance that bacterial activity be limited. He says that it is impossible to change the intestinal bacterial flora by giving bacteria by mouth, although it may be temporarily limited by the continuous administration after this manner. The best way is by changing the composition of the food. Diminishing the proportion of the carbohydrates and increasing that of the proteins changes the flora from the fermentative to the putrefactive, and by doing the reverse the flora may be changed from the putrefactive to the fermentative. This can be shown by bacterial examination of the stools, but can be as readily shown by the reaction of the stools, as the stools are acid when the flora is mainly fermentative and alkaline when the flora is mainly putrefactive. Organisms growing on fat have relatively little to do with fermentation in the intestinal tract, but the products of their activity increase the activity of the stools. When the organisms of the gas bacillus group are the cause of the fermentation of the intestinal contents much may be done by the administration of the organisms that produce lactic acid. The best type is *Bacillus bulgaricus*, and the best results are obtained when it is given in the form of buttermilk. In addition to a greater number of bacteria the buttermilk contains considerable lactic acid. There is no place for drugs except for temporary relief.

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**Frozen Milk.**—MIXSELL (*Arch. Ped.*, May, 1920) presents a problem about which the physician is frequently questioned, especially in our Northern States, during the winter months. Owing to the marked difference of opinion of authorities he makes it a rule to use some other feeding if the milk has become frozen. This is especially done in the case of young infants. He states that he has never seen personally any deleterious effects from the ingestion of frozen milk. It is perfectly possible that a putrefactive diarrhea may ensue, owing to the growth of the putrefying bacteria at low temperature and the breaking down of the proteids into amino-acids, or to have a diarrhea as the result of lactic and fatty acid formation. It has been shown that there is no increase in the number of bacteria in forty-eight hours. After that time the increase is marked, although the usual lactic acid forming organisms are not present in sufficient quantities to form a curd. There is rapid proteolysis which is pronounced at the end of two weeks. The acidity is markedly increased, owing to the bactericidal action on lactose changing it to lactic acid. No marked change in the fat has been noted except that caused by bacteria.